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IMPACT '87

Product review: hydraulic log loaders and excavators

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Economist projects moderate softwood market growth in the late 1980s, but total consumption should hit 48 to 49 billion bd ft annually in the 1990s

What the future holds for U.S. wood industry

By Bernard Fuller

Tarpon Springs, Florida

To understand where the industry is today and where it's headed, we need to look into the not-so-distant past.

For example, aggregate softwood lumber demand (domestic plus exports) in the U.S. during the 1970s went from 36.8 billion bd ft to 40.2 billion bd ft. Remarkably, that figure dropped only half a billion bd ft in the early 1980s when the country was experiencing the worst recession in 50 years. Housing starts in 1982 were down to a million, the Gross National Product was in a slump, industrial production was down, yet the industry was producing about 40 billion bd ft a year. Why? Obviously, the market was growing despite lower levels of economic activity.

Given what we saw in 1986, it is our view that total softwood lumber consumption for the late 1980s, including exports, will average between 47 and 48 billion bd ft a year. That's close to 20% above the level of the early 1980s. Traditionally our view has been that lumber is a mature market, yet we see it showing some pretty significant growth rates.

We don't see so much growth over the late 1980s, primarily because of the projected slowdown in housing starts, but total consumption should average 48 to 49 billion bd ft per year throughout the 1990s.

Growth in southern output

In the U.S., the South has shown the most rapid growth over the past 10 to 15 years. It grew from 7.5 billion bd ft annually in the early 1970s to 9.7 billion bd ft in the early 1980s, a 30% increase on average over a 10-year period.

One of the problems in the South seems to be difficulty in counting lumber. Two or three years ago an extra 3 billion bd ft per year of production was discovered. After that problem was resolved, last year's production report from the U.S. Census Bureau was below what the industry grading agencies reported. Our estimates are that the 1986 shortfall in what actually has been recorded by the Southern Forest Products Assn., National Forest Products Assn. and the Census Bureau could be anywhere between 8% and 10%. So instead of 11 billion bd ft average production, it could be closer to 12 billion. And 1985 figures were probably around 11 billion bd ft instead of 10 or 10.5 billion.

Nevertheless, we are looking for continued growth in the volume of southern pine produced, reaching about 12 billion bd ft by the end of the 1990s, on an unrevised basis. Revised figures could be closer to 13 or 13.5 billion bd ft.

Treated lumber market

Why has the volume of southern pine production increased 30% over a decade? The main driving force until now has been the treated wood business. We estimate that the treated lumber market in 1986 was in excess of 5 billion bd ft. That's triple the 1975 level. At least 80% of that volume is southern pine. Viewed another way, over 4 billion bd ft of the total 11 to 11.5 billion bd ft of southern pine lumber produced in '86 was treated.

At some point this growth rate has to flatten. Possibly the major factor that could keep the annual growth rate above a 4% or 5% trend is the significant penetration of the wood foundation market.

While wood foundations aren't new, what is new is the exposure being given them, especially by SFPA. But it remains to be seen how successful the promotional programs are going to be. A lot of stereotypes and fears about what a wood foundation means need to be overcome. For that reason, our forecast doesn't assume major growth in the wood foundation market.

By the early 1990s there should be around 250 million bd ft of treated lumber going into the Caribbean market, though some of that is going to be radiata pine and other species.

Overall, we are looking for 50% growth in total treated wood demand between now and the end of the century. That amounts to about a 7.5 billion bd ft per year market through the 1990s. And I expect some erosion of the southern pine market share; I think there will be more treated red pine, ponderosa pine and even spruce.

TABLE 1—Major supplying region shares of U.S. softwood lumber market (%)

	South	West Coast	Inland	Canada
1971-1975	20	22	26	20
1976-1980	22	21	24	25
1981-1985	25	18	21	29
1986-1990	23	19	20	31
1991-1995	23	19	20	30
1996-2000	24	19	19	30

NOTES: (1) 10% Tariff assumed. (2) Shares calculated as regional production or imports divided by total U.S. consumption plus U.S. exports. (3) No significant growth in imports of non-Canadian softwoods assumed.

Effect of tariff

The Canadian share of the U.S. market has grown from 20% to 29% and we're looking for around 31% in the late 1980s. In our projections we assumed a 10% tariff would be imposed. Though a 15% tariff has since been announced, our figures are still in the ballpark (see Table 1). Without a tariff, the Canadian share probably would have been 33%.

By placing a 15% tariff on lumber coming from Canada, there won't be a 15% increase in the price of the affected items. We expect to see spruce prices go up in the short term. We think there was about a billion bd ft of production lost in Canada in 1986 because of the strike in British Columbia.

From 1987 to 1990, on average, we are forecasting that the impact of a 15% tariff would be a drop in f.o.b. spruce prices from mills in western Canada by around 6%. Domestic prices would rise 6 to 7% (7% on western lumber and 6% on southern) and Canadian mills would lose about two points on their market share.

Housing forecasts

Through the end of the century there are several major developments taking place on the demand side. For instance, as 1986 drew to a close, housing was weakening to below 1.7 million starts. Everyone assumed demand from the Baby Boomers would keep housing at the 1.8 to 1.9 level at least through 1988. But maybe there just isn't enough "oomph" there, especially at current interest rates.

Some people think 9 to 10% interest mortgages are a bargain, but that's not the case. Mortgages must get down to 8% to tap into that high resource. We're looking at a demographic "Baby Bust" by the end of the decade because the numbers just aren't there to keep the demand for housing at the level it was in the 1970s and '80s. In the 1990s we're looking for housing starts to average 1.4 to 1.5 million starts, probably 1.6 in peak years and down close to a million in recession years. That contrasts with the 1.7 level of the 1970s and now. The only good news is that single-family housing starts will go higher.

It is inevitable that the volume of lumber and panel products going into residential construction, as a share of the total, will continue to decline at least until the end of the century.

Non-residential sector

The non-residential side over the short term is going to be sluggish because many sectors, such as office buildings and health care facilities, have been overbuilt. However, one factor that supports wood use in the non-residential market is the tendency for these units to be low-rise.

Until the full impact of tax reform is known, it could be that the non-residential sector will be flat for at least the next 12 to 18 months and won't come back until 1988. In the 1990s, though, I think you will see growth both in the total volume of non-residential construction and in the percentage of units using wood.

Growth in remodeling

The big growth area in the last two or three years has been residential repairs and remodeling.

The primary reason is high land values in some areas of the country that make building prohibitive. I think the 1990s also will be favorable for the repair and remodeling market (see Table 2). The Baby Boomers will be moving into a period of their lives when they are more likely to do major remodeling to homes they already own.

On a constant dollar basis, the average for expenditures on repairs and remodeling has trended upward during the 1970s and 1980s. And I think the long-term trend is for further increases. The reason is that, unlike the downward trend in housing starts from 1.7 to 1.4, the number of new households will continue to grow.

Slow industrial growth

The problem with industrial market growth and the use of lumber and wood products made for consumption—packaging, crating, etc.—is that industrial output hasn't grown in the past couple of years. Most economists are forecasting that at some point in the not-too-distant future, the U.S. manufacturing sector will rebound. If that happens, you'll see a bit more lumber going into these end use markets.

But I've been doing work on the furniture markets and I'm not so sure that the rebound will hold true. A major concern on the furniture side is the growing volume of import substitutions. These are coming from countries whose currencies have not appreciated as the dollar has—Korea, Taiwan and Canada. So I'm a little skeptical of the long-awaited recovery in U.S. industrial output.

TABLE 3—U.S. lumber exports (billion bd ft)

	Total domestic consumption	Exports	
		Volume	Share (%)
1971-1975	35.5	1.4	3.7
1976-1980	38.6	1.6	4.0
1981-1985	38.0	1.7	4.2
1986-1990	45.7	2.0	4.3
1991-1995	46.7	1.9	3.9
1996-2000	47.1	1.9	4.0

TABLE 2—U.S. softwood lumber end-use markets (annual averages, billion bd ft)

	Residential*		Residential repair and remodeling		Total volume
	Volume	Share (%)	Volume	Share (%)	
1971-1975	15.1	42	7.5	21	35.5
1976-1980	15.8	41	8.2	21	38.9
1981-1985	13.2	35	9.2	24	38.0
1986-1990	15.7	35	11.9	26	45.7
1991-1995	14.4	31	12.2	26	46.7
1996-2000	13.3	28	12.8	27	47.1

** Single-family, multi-family and mobile homes.*

Lumber prices low

Competitive pricing is another factor that particularly affects markets using wood products. Looking at these end use markets, if a lumber product is competitive in price, quality and performance, there will be further expansion. But the emphasis is on price! One main reason there has been significant growth in treated products and overall softwood lumber consumption in the 1980s has been the low real price. Historically, lumber prices are the lowest they have ever been in a postwar period, if not lower.

Wood usage projections

We're projecting that the volume going into domestic residential construction in the late 1980s is pretty well where it was in the late 1970s at the peak of the housing cycle. But as a percentage of the total market, it is down quite sharply. And we're saying that by the late 1990s, less than 30% of all U.S. softwood consumption will be for residential construction, including single-family, multi-family and mobile homes.

U.S. exports

Unlike the situation for Canadian mills, exports are relatively unimportant for most U.S. lumber manufacturers. We're assuming that, optimistically, exports will average 2 billion bd ft annually by 1990. The industry hasn't averaged anywhere near that in the past 15 years. And that level is only 4.3% of the total market (see Table 3). Frankly, we're skeptical about the industry's ability to increase those volumes in the 1990s because we think it is going to see a lot more competition.

In our view, Japan has to be a big growth factor if total U.S. exports are to go above the 2 billion bd ft level in the 1990s. But, suppose we are too conservative and the industry increases exports 50% to 3 billion bd ft over a 10-year period.

Even then the total would only be 6% of the market. The industry is still going to be dominated by consideration for the domestic market.

TABLE 5—Real timber values in U.S. South and West ($1985/MBF-Scribner)

	West	South
1971-1975	236	148
1976-1980	319	176
1981-1985	130	153
1986-1990	149	167
1991-1995	172	162
1996-2000	178	191

NOTE: No tariff on lumber imports incorporated in this forecast.

Timber values

If southern pine gets to be a 12, 13 or 14 billion bd ft industry, there have to be some consequences for the future. The most important one, in my opinion, relates to timber values. For example, the old U.S. Forest Service forecast from the 1970s shows southern pine growing stock on an upward plane to the year 2015. Growing stock reached 140 billion ft^3 from a level of around 90 ft^3 in the late 1970s. In the new data on removal to growth rate, the growth rate in particular is a lot lower than had been previously assumed.

We're saying that the growing stock has peaked and there is a downward trend at least through the next 25 years. After 2015, it starts going back up again. Looking at that growing stock profile, indications are it will put pressure on timber and cause real timber prices to rise.

At the same time, we are building into our forecast an assumption that a lot of plywood demand, both southern and western, will be replaced by nonveneered panels such as oriented strand board and waferboard. We see around 50% of the U.S. panel market being non-veneer by the late 1990s. Plywood will be a 14 billion ft^2/yr market compared to the current 20 to 21 billion ft^2 market (see Table 4).

If this attrition doesn't take place and the plywood market holds even at around 20 billion ft^2/yr, then southern pine removals will accelerate and so will the pressure on growing stock. Production at this level over the next three or four years will drive southern pine timber prices up faster than they would accelerate otherwise.

Current southern pine timber prices are low due to salvage cutting for beetle damage. We believe that if and when the beetle epidemic is over, most timber products will recover. Using 1985 as a basis, we see southern pine climbing above $190/1000 bd ft (Scribner scale) by the late 1990s (see Table 5).

If the 15% tariff is applied to Canadian lumber, the price would be somewhat higher. One thing our work shows clearly is that a large part of any increase due to a tariff goes back to the timber base. It goes back into the price of stumpage on the West Coast and to fee owners in the South.

While there is a growing softwood market, the industry faces an oversupply of lumber in the sense that operating rates aren't at the level mill owners would like. There is currently 15 to 20% more capacity than there was in 1979. This reflects an unusual mill phenomenon. During the early 1980s while the industry was experiencing an economic crisis, mills expanded and upgraded. I think this reflects the family ownership structure where a mill is run as long as it puts bread and butter on the table.

I think we are going to be seeing excess capacity and pressure on margins for at least the next four or five years.

I think there are market niches out there and the successful producer in the 1990s will be adding value to fill them. I think you're going to see a lot more specialty products and lots fewer mills oriented to traditional commodity products. And I think market development is crucial. Better data collection is essential for treated lumber and other products coming into the market. ■

TABLE 4—U.S. structural panel demand

	Plywood		Nonveneered	
	Volume	Share (%)	Volume	Share (%)
1971-1975	17.1	100	—	—
1976-1980	18.8	97	0.51	3
1981-1985	18.4	91	1.82	9
1986-1990	19.7	77	6.05	23
1991-1995	16.2	60	10.94	40
1996-2000	14.0	48	15.00	52

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Though a trade bill could stir protectionist sentiment with U.S. trading partners, the overall outlook for 1987 wood exports is good. Exports in 1986 neared $3 billion

Markets up, dollar down; wood exports encouraging

By Griff Griffin

Atlanta, Georgia

U.S. industry's lack of trade competitiveness has moved front and center as a national political issue, making some sort of trade bill in 1987 almost a sure bet.

The question looming over industry in the next few months, however, is whether the forthcoming legislation will be trade restrictive or trade expansive, and nobody is anteing up for that one.

Democrats interpreted their November Senate gains as a mandate to revive the ailing industrial sector. And as 1986 ended, party leadership was formulating an aggressive trade policy with tough "fair trade" rules. Reciprocity is a key element.

A trade bill could have harsh negative consequences for U.S. exporters. Matthias Wissman, economic spokesman for West Germany's Christian Democratic Party, was quoted recently as saying that a U.S. trade bill could "strengthen protectionist elements in the European Community."

With a trade deficit in 1986 of approximately $170 billion and with industrial activity flat for over two years, the U.S. obviously has lots at stake. And the uncertainties of the new tax bill will make industrial recovery difficult at best. In fact, the nation's export/import balance is expected to largely determine its pattern of industrial growth for 1987.

Barring serious repercussions from a trade bill, the export outlook is encouraging. The prevailing view from the National Forest Products Assn. is that developments in trade policy will primarily affect imports. John Ward, NFPA's vice president of international trade, said the overall volume of wood products exports should increase by a solid 10% in 1987, up from 8% in 1986.

As a matter of perspective, however, it should be noted that the U.S. is a net importer of wood products. Imports in the first three quarters of 1986 exceeded $4.1 billion; exports were just over $2.1 billion (see table on following page). This was a 10% rise over 1985 imports for the same period. The rise was attributed largely to Canadian softwood lumber imports, which topped $2.34 billion.

By the end of 1986, a variety of U.S. wood products was showing export gains over 1985. The total value for the year was expected to be near $3 billion. In the first nine months, the quantity of softwood lumber exports was up by 20%, hardwood lumber by 33%, particleboard by 47%, softwood veneer by 33%, hardwood veneer by 27% and hardwood plywood by 33%. But the star performer was softwood plywood, with an 86% gain.

These softwood plywood gains were largely attributable to a strong recovery in European markets. Sales there accounted for between 70 and 75% of U.S. exports, according to the American Plywood Assn.

Overall softwood exports in 1986 showed only a 3% gain for the first three quarters, climbing to $1.5 billion from $1.46 billion in 1985. A large decline in exports to China and a notable drop in softwood lumber shipments to Australia hurt the total.

Hardwood exports in the first nine months totaled $400.2 million, a 24% increase over $321.7 million for the same period in 1985. Hardwood lumber showed a 36% gain, up from $184 million to almost $250 million for this period. The European Community alone increased hardwood lumber imports from the U.S. by 34%, from $63.9 million to $85.7 million.

Also in a nine-month comparison, particleboard exports showed almost a 47% gain, with sales growing from $16.2 million to $23.8 million.

Among the myriad of factors influencing export gains by individual wood products, two are notable: 1) the decline of the U.S. dollar versus foreign currency exchange rates; and 2) aggressive marketing programs conducted by various forest products associations.

NFPA's Ward said he expects to see the dollar stay down this year relative to the currencies of other major trading partners. "I think we'll see a break in the dollar relationship in 1987 that we didn't see in '85 or '86, which should provide even greater export stimulus," he noted.

Canada

Canada and the U.S. share an unusual trade relationship in that Canada is the biggest U.S. competitor in many wood markets, but it's also one of its biggest trading partners. That country was second only to Japan in 1986 as a wood products export market, with U.S. sales in the first three quarters totaling $259.8 million.

Hardwood exports overall were down slightly, from $73.8 million to $70 million. Hardwood lumber exports increased in quantity in the first nine months of 1986 over 1985 by 11%, from 99,963,000 bd ft (235,912 m^3) to 110,508,000 bd ft (260,799 m^3). Hardwood plywood increased 7%, from 11,957,000 ft^2 to 12,774,000 ft^2.

Softwood products overall were up 7% in value for this period, from $123.8 million to $132.1 million. Softwood lumber rose 24%, from 224,195,000 bd ft (529,100 m^3) to 277,476,000 bd ft (654,843 m^3). Plywood exports were up from 35,199,000 ft^2 to 41,612,000 ft^2 and veneer was up from 153,616,000 ft^2 to 185,630,000 ft^2.

Japan

Japan's efforts to stimulate its domestic economy are expected to include a significant increase in housing starts, thus increasing demand for U.S. wood products. Japan's forecast called for 1.27 million starts in 1986, with 45% of those being wood frame. Wood frame

U.S. trade balance, by commodity (January - September, 1986)

Commodity	Exports	Imports	Net Balance
		($1000)	
Softwood logs	821,728	4,685	817,043
Hardwood logs	71,475	3,445	68,030
Poles, piles, posts	15,113	10,450	4,663
Wood chips	118,604	13,787	104,817
Softwood lumber	451,360	2,359,080	(1,907,720)
Hardwood lumber	249,503	97,279	152,224
Softwood flooring	102	326	(224)
Hardwood flooring	4,846	21,903	(17,057)
Siding	550	101,822	(101,272)
Molding	7,779	84,773	(76,994)
Treated lumber, flooring, siding and molding	3,059	16,812	(13,753)
Railroad ties	3,481	2,670	811
Softwood veneer	9,869	12,427	(2,558)
Hardwood veneer	57,668	84,030	(26,362)
Softwood plywood	88,577	26,069	62,508
Hardwood plywood	9,741	361,198	(351,457)
Hardboard	18,193	43,820	(25,627)
Particleboard	23,841	105,029	(81,188)
Cellular wood panels	1,152	168	984
Gypsum and plaster board	6,519	76,382	(69,863)
Other panel products	22,728	26,644	(3,916)
Misc. wood products	183,712	669,481	(485,769)
Total	**2,169,600**	**4,122,280**	**(1,952,680)**

SOURCE: U.S. Department of Commerce.

prefabricated housing has increased notably.

While Japan is the largest U.S. export market, it has been down substantially since 1981 because of a slack economy and a housing recession. Consumption increased in 1986, due primarily to the yen gaining against the dollar. Also, that government has bowed somewhat to increasing U.S. pressure for reduced trade restrictions.

Lower tariffs on certain U.S. wood products will go into effect in April, adding over $20 million in annual trade. The biggest import increase will be in softwood and hardwood veneers.

Japan reduced tariffs on veneers, lumber, laminated products, moldings and panel products other than plywood for 1986 and 1987 as a result of ongoing MOSS (Market-oriented sector selective) negotiations. By the end of 1987, new and revised product standards are expected to give U.S. exporters easier access to the Japanese market.

Total U.S. wood products exports in the first nine months of 1986 amounted to $907.3 million, up 14% over $794.3 million for the same period in 1985. This included an increase in total hardwood exports of 57%, up from $30.1 million to $47.1 million and a 12% softwood export increase, up from $749.5 million to $840 million.

Specific quantity gains over 1985 for this nine-month period included: hardwood logs, up from 3,803,000 bd ft (8975 m^3) to 7,657,000 bd ft (18,070 m^3); hardwood lumber, from 30,948,000 bd ft (73,037 m^3) to 45,728,000 bd ft (107,918 m^3); softwood logs, from 1.405 billion bd ft (3.32 million m^3) to 1.488 billion bd ft (3.51 million m^3); softwood lumber, from 415,810,000 bd ft (981,311 m^3) to 554,587,000 bd ft (1.3 million m^3); softwood plywood, from 4,912,000 ft^2 to 6,649,000 ft^2; and softwood veneer, from 40,201,000 ft^2 to 72,559,000 ft^2.

Australia

Elsewhere in the Pacific Rim, U.S. softwood lumber exports to Australia were projected to be down notably in 1986 because of a slump in the housing industry. For the first three quarters the quantity was down versus 1985 from 131,250,000 bd ft (309,750 m^3) to 95,376,000 bd ft (225,087 m^3). In fact, total softwood exports for that period declined from $45.5 million to $31.1 million.

In 1985, total U.S. wood exports to Australia were almost $64 million. Of that, $55.3 million was softwood lumber sales, a volume of 375,000 m^3.

Australia is viewed as a steady and dependable lumber market with opportunities for increased penetration by western U.S. manufacturers in 1987.

Korea

Of Korea's $555 million wood products import market in 1985, $488 million was logs. Only $67 million was spent on processed products. And 58% of log imports were hardwood logs from Southeast Asia.

On a quantity basis, the U.S. supplied 62% of the softwood log market and 75% of the softwood lumber market in 1985. This amounted to 1.5 million m^3 of logs and 6000 m^3 of lumber. The country's total hardwood lumber imports totaled 134,000 m^3 and the U.S. share was 16%, or 22,000 m^3. Hardwood log imports totaled 3.3 million m^3 and the U.S. share was 1%.

Comparing the first nine months of 1985 with the same period of 1986, total U.S. softwood exports were up 57% on a value basis. The level rose from $75.5 million to $85.4 million. Specific product gains by quantity included: logs, up from 251,185,000 bd ft (592,796 m^3) to 283,595,000 bd ft (669,284 m^3) and lumber, up from 4,035,000 bd ft (9522 m^3) to 8,717,000 bd ft (20,572 m^3).

Hardwood exports increased from $6 million to $9 million. Notably, log exports increased from 2,450,000 bd ft (5782 m^3) to 4,291,000 bd ft (10,126 m^3) and veneer gained from 11,894,000 ft^2 to 23,837,000 ft^2.

Indications are that softwood is gradually gaining in some traditional hardwood markets such as furniture manufacturing because of cost factors.

Future market prospects look good for U.S. suppliers because many of Korea's traditional sources of tropical hardwood logs are banning exports.

Taiwan

Like Korea, Taiwan is a major exporter of tropical hardwood plywood. But it too is facing a permanent decline in log suppliers because of export bans in Indonesia and Malaysia. This is expected to increase markets for U.S. veneer and panels in the near future.

Currently, about 90% of U.S. exports are consumed by Taiwan's export industries, especially furniture and cabinet manufacturers. Structural products such as softwood plywood and framing lumber have little application for domestic construction. But export sources say trade in these items could be increased by $10 million annually if tar-

iffs were reduced or eliminated.

U.S. solid wood exports to Taiwan in 1985 totaled $72.6 million. Of this, hardwood products accounted for $59 million and softwood only $1.2 million.

Major U.S. export products included: 109,900 m^3 of hardwood lumber, 83,700 m^3 of hardwood logs, 22,500 m^3 of hardwood veneer, and 29,000 m^3 of particleboard. Softwood log and lumber exports totaled 6200 m^3 and 4900 m^3, respectively.

For the first three quarters of 1986, total U.S. exports totaled $94.7 million versus $51.8 million for the same period in 1985. Hardwood products gained substantially, from $42.8 million to $72.3 million. Notably, lumber exports increased from 32,218,000 bd ft (76,034 m^3) to 70,197,000 bd ft (165,665 m^3) and veneer from 51,839,000 ft^2 to 84,073,000 ft^2. The only notable softwood gain was in log exports, up from 1,357,000 bd ft (3202 m^3) to 4,712,000 bd ft (11,120 m^3).

High volumes of particleboard and MDF exported to Asia, especially Taiwan and Singapore, are consumed by the furniture industry and the finished products then imported back into the U.S. These low-cost wood furniture imports are an increasing problem for U.S. manufacturers. Imports rose 160% between 1980 and 1984, capturing a $1.2 billion market share.

People's Republic of China

China is expected to increase imports of U.S. wood products this year. Wood imports declined drastically in 1986 primarily due to low foreign exchange availability and high imports in 1985. However, China could become the largest importer of U.S. wood products within five years, according to a joint NFPA/FAS study completed in 1986.

China imported wood products valued at over $750 million in 1985. Of that total, $323.4 million was for softwood logs (4.8 million m^3) from the U.S. But only 39,700 m^3 of softwood lumber was shipped.

From 1981 through 1985, China's annual lumber imports increased from 63 million to 122 million bd ft, but the U.S. share slipped from 55% to 14%. Through aggressive marketing, Canada rapidly became the major supplier. Of approximately 300,000 m^3 imported in 1985, it had an 85% share.

Chinese construction is oriented to concrete frame and brick. Primary wood uses are for window and door components, concrete forming and scaffolding.

China imports only about 500,000 m^3 of softwood plywood annually, mostly from Indonesia. It isn't a primary construction material. Composite panels are promoted for use in the furniture industry as a means of woodwaste utilization.

To introduce timber-frame housing technology and to promote plywood, the American Plywood Assn. has participated in two demonstration house projects, one at Beijing and the other at Dalian.

As the country's foreign exchange reserves declined in 1986, most imports were through countertrade agreements. Overall U.S. exports were down 38% in the first seven months. But the U.S. is expected to regain a 52% share in 1987.

West Germany

U.S. solid wood exports to West Germany declined 23% from 1984 to 1985. The majority of solid wood exports in 1985 consisted of hardwood logs, veneer and plywood and softwood lumber. Softwood exports amounted to $15.8 million and hardwood exports $71.1 million.

Comparing the first three quarters of 1986 with the same period of 1985, total U.S. exports to West Germany increased 28% on a value basis, from $72.5 million to $92.7 million.

Quantity gains included: hardwood logs, up 20% from 18,737,000 bd ft (44,219 m^3) to 22,455,000 bd ft (52,994 m^3); hardwood lumber, up 14% from 16,465,000 bd ft (38,857 m^3) to 18,750,000 bd ft (44,250 m^3); hardwood veneer, up 63% from 180,482,000 ft^2 to 294,444,000 ft^2; softwood lumber, up 46% from 12,723,000 bd ft (30,026 m^3) to 18,603,000 bd ft (43,903 m^3); and softwood plywood up 94%, from 14,572 ft^2 to 28,257 ft^2.

Italy

U.S. exports to Italy declined in 1985 due to high interest rates, weak domestic demand and drastic fluctuations in that country's exchange rates. Still, it was the eighth largest U.S. export market, with shipments totaling $66.3 million. The predominant solid wood exports were softwood and hardwood lumber, totaling $42.6 and $10.2 million, respectively.

Furniture manufacturing accounts for some 70% of all wood products consumed in Italy. A general worldwide decline in demand for furniture in 1985 seriously depressed its overall wood products industry.

Compared with the first three quarters of 1985, the same period of 1986 saw a 27% improvement in total U.S. exports on a value basis. Exports were up from $49.5 million to $62.8 million.

Biggest product gains were: softwood lumber up 21%, from 132.8 million m^3 to 160.8 million m^3; hardwood lumber up 36%, from 23.9 million m^3 to 32.6 million m^3 and hardwood veneer up 63% from 17.1 million ft^2 to 27.9 million ft^2.

Netherlands

Although the Dutch economy improved in 1985, poor economic conditions have caused new home construction to decline notably since 1983. And as a result, there has been a concurrent drop in general wood products consumption. Home improvement construction is increasing, however.

U.S. solid wood exports were down 9% in 1985 over 1984. On a value basis, some 75% of U.S. sales was hardwood lumber (26,200 m^3) and softwood plywood (43,000 m^3). The U.S. was the primary supplier of plywood, followed closely by France. Other U.S. exports included: 4400 m^3 of hardwood logs; 10,700 m^3 of softwood lumber; 1100 m^3 of hardwood veneer; 600 m^3 of hardwood plywood; and 400 m^3 of particleboard.

For the first nine months in 1986, overall U.S. exports were up 64% over the same period of 1985, from $18.7 million to $30.7 million. Softwood imports more than doubled, up from $9.2 million to $18.6 million. The quantity of softwood lumber increased from 3,959,000 bd ft (9343 m^3) to 12,646,000 bd ft (29,844 m^3) and softwood plywood increased from 29,496 ft^2 to 64,883 ft^2.

United Kingdom

U.S. solid wood exports to the United Kingdom accounted for only about 4% of that country's total solid wood products imports in 1984 and declined 25% from that level in 1985. Most exports in 1985 were softwood lumber (63,900 m^3), softwood plywood (58,100 m^3) and hardwood lumber (42,400 m^3).

The overall trade decline in 1985 was due mostly to loss of market share by U.S. plywood manufacturers, primarily to Canadian competitors. This trend was reversed in 1986.

U.S. exports for the first three quarters of 1986 were up 57% compared to the same period of 1985, rising from $46.1 million to $72.4 million. Product gains included: hardwood lumber up from 13,046,000 bd ft (30,788 m^3) to 21,774,000 bd ft (51,386 m^3); hardwood plywood up 486,000 ft^2 to 8,005,000 ft^2; softwood lumber up from 20,894,000 bd ft (49,310 m^3) to 34,432,000 bd ft (81,260 m^3); softwood plywood up from 54,247,000 ft^2 to 83,941,000 ft^2; and softwood veneer up from 758,000 ft^2 to 2,240,000 ft^2. ■